Monograph of the HICSS-39 Symposium on Case and Field Studies of Collaboration

Robert O. Briggs[1,2] and Jay F. Nunamaker, Jr.[3], Editors

[1]Center for Distance Education
College of Rural and Community Development
University of Alaska
bob.briggs@uaf.edu

[2]Faculty of Technology, Policy, and Management
Delft University of Technology, The Netherlands

[3]Center for the Management of Information
University of Arizona
jnunamaker@cmi.arizona.edu

ISBN: 9056381504

Choice criteria for facilitation techniques

Gwendolyn L. Kolfschoten
Department of Systems Engineering
Faculty of Technology Policy and Management
Delft University of Technology
g.l.kolfschoten@tbm.tudelft.nl

Etiënne A. J. A. Rouwette
Methodology Department
Nijmegen School of Management
Radboud University Nijmegen
E.Rouwette@fm.ru.nl

Abstract

Facilitation is increasingly used to support collaboration processes. An important task of the facilitator is to prepare a collaboration process by choosing an appropriate sequence of facilitation techniques. At present little is known on how experienced facilitators make this choice. In this paper we collect data on the choice of facilitation techniques, using a questionnaire, a group session, and a series of interviews with experienced facilitators. Qualitative analysis of the results revealed a generic set of choice criteria. These were predicted effectiveness,(e.g. expected result) predicted efficiency (e.g. time required for a technique), task requirements (e.g. need for consensus), group requirements (e.g. group size) context and future steps (e.g. future of the participant group) and the facilitator's preference. The study confirms assumptions underlying certain choice approaches described in literature, but also shows the complexity of the choice indicating that many approaches are incomplete. This is an important base for further development of intervention tools and the training of facilitators.

1. Introduction

Due to increased information access, a more complex society, and shared responsibilities, increasingly tasks will be done by groups rather than individuals. This makes collaboration essential to the creation of organizational value [1]. Although multiple individuals have more knowledge and experience than a single person, collaboration is fraught with challenges [2]. Therefore, good collaboration is nowadays an important competitive asset for organizations, and consequently, collaboration support is considered valuable. Facilitation as a means to support collaboration processes has developed over the years as a research field and as a profession. Facilitation is a dynamic process that involves skills and methods to support a group in achieving their goal [3, 4]. Facilitation is often combined with Group Support Systems (GSS), or training, as for example in Schwartz's developmental facilitation in which facilitation is used to train the group in effective collaboration [4].

Facilitation has the objective to increase the quality of collaboration and its outcomes. One of the most important tasks of a facilitator is to design or prepare a collaboration process [5, 6]. In a creative design or problem solving task the following general steps are distinguished: identification of the issue, analysis, finding (and evaluating) alternatives, choice and implementation [7-12]. These general steps involved in a design process can be used to describe the design of a facilitated session. An important step in the design process is choice, in which a decision is made on the approach to the problem. This step is based on and bounded by issue analysis and identification of alternatives in previous steps. Therefore, one of the key tasks of a facilitator is to analyze the issue at hand, identify alternative, appropriate tools or techniques to support a collaboration effort and to choose among these [13-16]. Although several taxonomies of tools and techniques are available and used [14, 17, 18], we are uncertain about their completeness. In order to make an optimal choice, both functional requirements and quality constructs should be taken into account.

There are many challenges involved in the choice of a facilitation technique. Several researchers made an effort to support facilitators and GSS users in the choice among tools and techniques [13, 19-21] This paper will examine the criteria that are used to choose among facilitation techniques. The objective is to give an overview of criteria that are considered in choosing between facilitation techniques. Research shows that

facilitators use a relative small set of facilitation techniques on a regular basis. Novices use an average of 6 facilitation techniques and experts about 23 [22]. Compared to the size of libraries of facilitation techniques available in books and on the web, these are very small sets of techniques. Not knowing when a new technique can be applied successfully, can be one of the barriers to increase the toolset of the facilitator. Furthermore, despite the amount of techniques available, choosing the wrong technique can have severe consequences for the success of and trust in the facilitator [23]. This paper aims to provide an overview of the criteria on the basis of which a technique is chosen. Such an overview will:

- Give insight in the complexity of the choice for a facilitation technique when many alternatives are available, or when it is difficult to find a suitable technique for a complex situation.
- Enable further support of facilitators in the design of a collaboration process for instance through the development of more sophisticated choice support tools.
- Give insight into the aspects of a facilitation technique that should be documented in order to facilitate choosing between techniques.
- Offer a method to select facilitation techniques from large libraries like [18, 24].

The remainder of the paper is structured as follows. First we explain the problems in and previous efforts to support the choice among facilitation techniques. Next, we explain our research approach and the choice of respondents. We approached our study objective from one perspective, the facilitator, but used different research instruments to get a complete overview of the criteria. We compare the criteria that we identified with different sources in literature to come up with a choice criteria set. We end with conclusions and suggestions for further research.

2. Background

A facilitation technique is a work practice of a facilitator, used to make one step in a collaboration process. Facilitation methods often consist of several facilitation techniques. An example of a method to find a solution to a problem, is to first brainstorm solutions, cluster these, and then select among the clusters to find an optimal solution. This method thus consists of three steps: brainstorming, clustering, and selection. A facilitator might be familiar with several brainstorming techniques. He or she can then choose between several techniques for brainstorming, such as the nominal group technique [25], or Brainstorming, as described by Osborn [26]. The facilitator must choose based on the differences between these brainstorming techniques, and the facilitator's knowledge or experience with each. As described before, the amount of methods that facilitators have experience with is limited. A new method is extra difficult to select, since their specific advantages or disadvantages are unknown.. Therefore, we are interested in the complete process of selection of a facilitation technique, both as a selection among different (known) alternatives for one step and as a step in the collaboration process.

One of the first complicating factors with respect to the choice of facilitation techniques is the amount of techniques from which facilitators have to choose. Choosing among many techniques might be difficult as many considerations and deliberations play a role, while choosing among a few limits choice. A number of libraries of techniques are available in books and on the web (see for example [18, 24, 27]). However, for the use of most techniques some level of training and experience is required. The number of techniques a facilitator has experience with, thus influences the number of techniques to choose from. Research among 89 facilitators shows that novice facilitators use on average six different techniques, while experienced facilitators use 16 techniques and experts use approximately 23 techniques [22]. (The level of expertise was based on the number of sessions facilitators ran.) While most facilitators (75%) are eager to learn new techniques, increasing their library will by definition make the choice more complex [28].

Second, classification of facilitation techniques is difficult. Choosing techniques would be easier if a generic classification or taxonomy was available. Several such classifications are published in print or on internet. Examples are the IAF methods database [18], the classification on the basis of patterns of collaboration [29], and task complexity [14]. However, it appears to be very difficult to find a taxonomic classification that can serve as an excluding choice criterion [17]. To our knowledge, no classification scheme is available which supports the final choice among facilitation techniques.

Third, available guidelines or tools to support the choice among facilitation techniques are limited in some sense. Previous attempts to support the choice between alternative forms of collaboration support are focused on GSS tools. Antunes describes a tool that

supports the choice of GSS tools based on a library of collaboration processes that are supported with GSS [20, 21]. The user is asked to compare his situation with the examples and therewith choose a GSS tool and a way to use it. Dennis et al [13] indicate that appropriate use of GSS tools can be supported with guidance, facilitation, restrictiveness and appropriation training. Although appropriation seems a valuable concept, the focus on tools involves some challenges. A small intervention of the facilitators can have a very large effect on the output and results [30]. The simplest tools like a chat functionality can be used in many different facilitation techniques. For many GSS and support tools, the appropriate use is however not documented. Therefore we suggest to focus on the appropriate use of facilitation techniques instead of tools. Santanen shows that comparing tool use or unspecific facilitation techniques can result in unfair comparisons, and thus conflicting results [31]. Thus, in order to support collaboration, facilitators should first select the appropriate facilitation technique, and then the supporting tool [17].

3. Method

Although prescriptive guidelines on the choice of facilitation techniques are available, few studies describe actual choice processes. In order to gather more information on the set of choice criteria and the how these are used in a choice process, we followed an incremental, interpretative research approach using three complementary data sources. Data were gathered in three phases.

For the first phase of data gathering, we draw on part of a questionnaire administered to 89 facilitators with different expertise levels. The results of this part of the questionnaire are not yet published, but for the approach of the questionnaire we refer to [22]. In the exploratory questionnaire about challenges in the design of facilitated collaboration processes, facilitators were first asked to indicate aspects of the group and the task that they considered during the design effort. Respondents were then asked to write down the criteria based on which they chose among facilitation techniques.

For the second source of data gathering we held a group session with experienced facilitators at the 2004 IAF Europe conference. A total of ten facilitators participated in the 3.5 hour session. Participants each had several years of experience as a (self-) employed facilitator working in Eastern Europe or the United States. In the session participants were asked to indicate to which extent they used information on the content of the problem and on the social system in the room, when preparing a session. They then sat down in subgroups of four people each and described a technique. For each technique they indicated when it could be used, and when not. Criteria to (not) use the technique were transferred to a whiteboard and discussed plenary. Although the group session resulted in rich information on session preparation and enabled participants to discuss choice criteria in their own wording, the question on the use of information addressed a general preparation process and did not focus on a particular session. We decided that in order to really elicit the choice criteria we would have to interview facilitators and ask them about the assumptions and reasoning behind their choices.

In the last phase of data gathering we therefore presented facilitators with a concrete and specific case description. The facilitators were asked to design a collaboration process for this case. They were then asked to choose techniques and verbalize their thinking process while doing so. This approach follows the guidelines of Verbal Protocol Analysis [32]. VPA 'has been used extensively as an effective method for in-depth examination of cognitive behaviors' [33]. The verbal reports generated using this method are a valuable and reliable source of information about cognitive processes [32]. The case concerned the development of a new ICT strategy for a university with a group of ten participants from different departments. Four hours were available to both analyze the problem and identify clear action points for the future. The case description was visible to respondents throughout the interviews which lasted from 0.5 to 2 hours each. A total of eight facilitators working privately or in Dutch universities and research institutes were interviewed. Each respondent had several years of experience in facilitating sessions using electronic meeting systems, paper and pencil methods, soft OR or modeling tools. Most interviewees combined experience in several areas. Each interview was transcribed into a written report.

The session report and interview transcripts were then analyzed using a grounded theory approach [34]. A central tenet of grounded theory is the close connection between empirical data and development of concepts to describe data. The analysis follows a four step procedure: exploration, specification, reduction and integration [35]. The exploration phase aims to characterize the content of transcripts, by identifying as many relevant concepts or keywords as possible for each section of the text. In this phase the

researcher's ideas about relevant codes and ideas from previous research play the role of 'sensitizing concepts'[36]. For this study the concepts identified in first phases of data collection, and depicted in table 1 and 2, have the role of sensitizing concepts. In the specification phase, codes are compared and codes that are central are identified. The text segments that each central code refers to, are compared to reveal differences and similarities, in order to clarify the dimensions of each central code. The reduction phase aims to elaborate the central concepts further, by describing and relating concepts. Finally, in the integration phase, the relations between the concepts are defined. Observation units are described in terms of the central concepts and related to literature, to finally combine them in the choice criteria overview [35].

4. Results

In a first attempt to elicit choice criteria we included a question on this topic in a questionnaire that was returned by 89 facilitators with different experience levels [22]. The question had an open character, but followed a closed question in which the importance and availability of several aspects of the group and task in a collaboration process were determined. The responses of the participants were clustered when similar, resulting in the criteria displayed in table 1. Note that 58 respondents answered the question, and that many respondents indicated multiple criteria.

Choice criterion	# of times indicated
goal as stated by the client	11
predicted outcome of the technique	13
effectiveness and efficiency	2
task as stated by the client	6
time frame	18
logistics such as the room layout	4
group capability	11
group kind of people or culture	22
participation or expected willingness to participate	4
client acceptance of the technique	5
facilitator's skill/preference/experience	15

Table 1 Questionnaire results on choice criteria

The table gives an indication of the criteria that are mentioned most frequently, such as the timeframe and the type of participants. However, many facilitators indicated that they took "everything" into account, indicating that they could not identify a specific selection criterion. Often respondents mentioned the "goal" (of the collaboration process) as an important criterion, which is a very abstract concept. In addition the concepts that were considered important in the previous question returned. New aspects are the predicted outcome, and its effectiveness and efficiency, logistics, the participation of group members, client acceptance and the facilitator's preference or experience. The latter indicates that facilitators make many choices based on the techniques stored in their personal library, and their experience with these. However, personal preference and the "goal" are still rather general criteria, indicating that it is likely that the choice is based on more detailed and hidden assumptions. In the next step we tried to find these assumptions.

The session in the IAF Europe 2004 resulted in the following information. Most participants indicated that they wanted to know as much as possible of both content and social system in their preparation. One participant explained this as follows: 'I do most of my work outside of meetings, talk to separate people or sometimes groups, such as the marketing people or the salesmen. Then I combine the results in my head and talk about the resulting actions to the head of the organization to get his reaction. With this I go back to the stakeholders.' Two participants indicated that they wanted to know little of the problem content or social process. After discussing their choice with others close to their position, participants were asked to form small groups to discuss specific techniques.

In subgroups participants were asked to individually write down a recently used facilitation technique and explain it to others. When or why would this technique be suitable and when would you not use it? In a plenary round the following answers were discussed, as displayed in table 2.

Aspects that are listed in this analysis are more specific than the answers gathered in the first phase of data collection. Motivation and encouragement are for instance listed as criteria. These concepts are related to participation and client acceptance mentioned in the questionnaires, but more specific. Still many questions remained. Why is it necessary to control output, or to put people on equal footing? To be able to find these answers we need to probe deeper once a choice criterion is determined. To do this we need to interview facilitators and provide an even more concrete case, for which they can explain precisely

why they choose a specific facilitation technique.

Technique	*When suitable*	*When not suitable*
Round robin (participants each give one idea in number of rounds)	Need to control outputs High emotion Encourage all individuals	Brainstorming ideas generation
Generating 'negative assumptions' (why it won't work) before brainstorming	When participants are full of negative assumptions, doubts or pessimism	When participants are enthusiastic, this phase is unnecessary
For each idea in a list, generate considerations pro and contra	Have different elements Dimensions	When new ideas or alternatives are needed
Panel brainstorming	Participants hear different opinions and arguments (base for consensus) 'Market' of ideas	Some participants remain silent
Profile tool (indicate and explain team role)	Simple, allow people to get a different perspective	If issues are not about relationships
Informal introductions when in a formal setting (location)	Warming up of the group To put people on an equal footing	Short meeting Formal environment
Summarise observations of effective behaviour	Efficiency Affirmation	Too early in the meeting
Write down the problem that brought you here	When we want to understand each other's standpoint and need a base, a motivation for our planned activities need for a quick and easy starter	When we want to leave the past behind
Issue analysis	General process is fun Problem solving Takes maximum of one hour	Accuracy Flexibility

Table 2 Results of the workshop on choice criteria

In the interviews we first explained exactly what we mean with the term facilitation technique. We then addressed the purpose of the interview and gave the respondent an opportunity to read the case. Respondents reacted very differently on the description. Some felt they had way too little information to design a session, while others immediately came up with a solution. We discussed the case until the respondent came up with an approach for the facilitation process. To fully describe the approach we addressed each step before, in, and after the session and which facilitation technique the respondent would use. Next we asked them why they chose this technique. To help the interviewees answer this question, we provided them with possible generic criteria. These were:

- The group need
- The task
- The facilitator's preference
- A standard procedure
- Their perception of good collaboration

When explaining why this was or was not the reason for choosing the facilitation technique, the respondent's choice criteria became apparent. The next section describes the criteria mentioned in the interviews.

5. Choice criteria from the interviews

5.1. Effectiveness

Facilitators indicated that it is important to keep in mind that a collaboration process is designed to achieve the goal stated by the client. Facilitation techniques should be chosen to make sure that each activity of the group contributes to goal achievement. If the effect of a facilitation technique is clear, because the facilitator has experience in using it, it is easier to make the choice for a technique. A facilitator can then better predict the effect of the technique and thus can better estimate if the technique will advance the group to its goal. Goal attainment is not a Boolean expression. The resulting group product can be more

or less complete, and it can be more or less shared by the group members. A facilitation technique can for instance be used to elaborate and increase the level of detail in solutions, or to discuss results and increase shared understanding and commitment with respect to a solution.

5.2. Efficiency

Our case description indicated a limited time frame. Although facilitators deviated from the assignment in other respects, they all stayed within the timeframe, while lowering the expectations on goal achievement within that timeframe. This indicates that they considered this as a fixed requirement to the process. The selected facilitation techniques should use the available time and resources optimally. Some facilitation techniques take more time than others and can be used to accomplish a task faster, or with less effort. The available resources such as GSS support and the available room and materials can also influence the choice of a facilitation technique. GSS use for example was often indicated as a method to save time and increase efficiency.

5.3. Task requirements

As effectiveness is a characteristic of a specific technique, techniques need to be chosen in such a way that their combined effects meet the requirements of the task posed for the group. Task requirements are the demands on the process and the deliverable. Each step of the group process should have a result that is needed to advances the group's progress towards their goals. Examples of frequently considered task requirements are the level of detail needed for the result; when detailed results are required, elaboration techniques can be used. and the task size of the collaboration effort, which can set constraints to the technique used. Other examples are the need for consensus on results and decisions, which can indicate the need for consensus building techniques and the required level of structure of the task, that can be met using hierarchical methods or modeling techniques. Also important are the need for shared meaning and understanding, for which convergence techniques can be used and the need for evaluation which can be met with voting methods. Last, requirements with regard to content can require a specific domain related method.

5.4. Group need

A facilitation technique should not only meet the requirements to the results, it should also match the needs and characteristics of the group. Many of the facilitators we interviewed asked additional questions about the stakeholders in the case description, such as for instance their responsibility with respect to the problem and their relation with each other. Factors that can influence the choice of the facilitation technique are the size of the group (some techniques are not suitable for a large or small group), and group cognitive capabilities, which determines the maximum cognitive load and complexity of the facilitation technique used. The background of people and their culture also influence the choice of a facilitation technique. For instance asking a group of marketing specialists to draw their ideas can be very successful, but posing the same question to the board of a large multinational might meet with less enthusiasm, due to the difference in group culture. Another consideration is the motivation of the participants to collaborate. Some techniques encourage motivation; other techniques particularly require motivation of the participants, which should first be established. Some facilitation techniques are used to increase conflict or consensus, emphasizing either differences or similarities among participant goals in the process.

5.5. Context and future steps

The choice of a facilitation technique is also influenced by the context of the meeting and the intentions with respect to the results. Relevant context elements are for instance a deadline for the project in of which the collaboration process is a step that can create stress, other, non present stakeholders which can cause for instance incompleteness of information, previous steps in the project, and the history of the group. Future steps that are relevant are the use of the results and the future of the group, and whether they need to collaborate again. The choices with respect to the scope of the process can are influenced by these factors. The choice of a facilitation technique for teambuilding is for instance influenced by expected collaboration in the future, and in a stressful situation icebreakers or a pep-talk can help the group, to gain efficacy to perform the task.

5.6. Facilitator's preference

All facilitators indicated that they have a set of facilitation techniques that they use frequently. Experience in a facilitation technique makes the process and the results more predictable. Facilitators develop their own style and some of their skills are

more successful than others. Personal preference is therefore an important choice factor for experienced facilitators.

5.7. Pleasant process

In order to motivate participants and to increase their satisfaction, facilitators try to make the collaboration process pleasant. Factors that contribute to the success of the process are a low cognitive load of the facilitation techniques, alternation in the techniques used, and the order of activities in the agenda. If many similar activities are done in sequence participants are likely to get tired or bored. In order to create a logical and focused collaboration process, the activities should fit to the previous and next step in the process.

6. Discussion

The criteria found in the interviews are much more detailed than in the two previous rounds of data collection. The previous section concludes the exploration and specification phase. In this section we address the reduction and integration phase in which we relate the constructs to the literature. In these phases we will develop the overview of choice criteria displayed in table 3.

6.1. Predicted efficiency

The facilitators mentioned choice factors like “this will be faster” or “this requires GSS support”. Such factors indicate a prediction based on experience. There is very little knowledge on the time required for a facilitation technique and this can be very variable, based on the situation. There is conflicting evidence on the effects of the use of GSS in a specific method, especially when the effect of a specific task in lab settings was measured [37, 38]. Thus facilitators’ choices are made on the basis of a predicted effect of the use of a specific technique. Efficiency is the degree to which time, effort, and resources are optimally used. Effort can be rather unpredictable when the facilitator does not know the group. Therefore facilitators will often strive to achieve a low cognitive load of the process. The effort of participants will be lower when participants are not motivated or bored. Alternation of facilitation techniques might solve this. The effect of resources and the time required can be estimated or predicted based on experience with a facilitation technique.

6.2. Predicted effectiveness

Effectiveness is the level of goal achievement. The effectiveness of a facilitation technique is thus the extent to which the facilitation technique advances the group towards its goal. For some facilitation techniques the effect is documented in a book or library [18, 24]. For some techniques the effects are researched, making them even more predictable [30]. Still facilitators indicated that they are careful or even reluctant to try new facilitation techniques, even when the effect is described by other facilitators; their personal ability to interpret and execute the documented technique is often a factor of uncertainty.

6.3. Task requirements

The task that is set for the collaboration process is one of the main factors that influence the process [2, 14]. Facilitators asked many additional questions about the case description concerning the task and deliverables. After a while they often made explicit assumptions about the requirements related to the task or the deliverables. The certainty with respect to the requirements is important and facilitators will try to make these requirements as certain as possible. One facilitator indicated that he used more predictable facilitation techniques when uncertain of the requirements posed by the client and by the group members during the process. We guess that using known facilitation techniques allows the facilitator to adapt the process to the group when things go different than planned, which increases the flexibility of the facilitator. Task requirements are considered on different levels. Most of the aspects we found relate to the patterns of collaboration as described by Briggs and de Vreede [29, 39]. Facilitators examined the need for the following outcomes: divergence and detail, shared understanding, structure and organizing, evaluation, and consensus and shared results. Other requirements that were mentioned were the time perspective and the scope of the task.

6.4. Group Requirements

The characteristics of the group give rise to very different requirements to the process [2]. For instance the group size sets requirements to the physical resources. In addition it influences the time for activities in which the participants cannot work in parallel, such as discussions. The capabilities of the group also influence the choice of facilitation techniques. For homogeneous groups capabilities can

easily be estimated; take for example the capabilities of a group of medical doctors or the capabilities of a school class. But the capabilities of the stakeholders in a large building project are much more difficult to estimate. Facilitators need to analyze the problems and conflicts in the group in order to solve or avoid them in their design. A previous study shows that in the preparation of a session, expert facilitators more often examine aspects of a group than novices [22]. Many facilitators indicated that once you invite stakeholders to participate, you should take their stake into account. When participants have a limited stake in the results of the process, the facilitator can motivate them to participate and contribute. Note that motivation for effort and motivation for participation are different things.

6.5. Context of technique and process

When we look at the choice of a facilitation technique, there are two types of context to take into account. The first type is the place of the facilitation technique in the sequence of activities from the collaboration process. The second type of context consists of the collaboration process in the organization and in a larger project. The sequence of activities can be very important; facilitation techniques should create a logical sequence and thus match with the previous and next technique [40]. The context of the session is the project in which it is embedded and the organization culture relevant to the session [2].

6.6. Facilitator's best practices

A questionnaire among facilitators [22] indicates that from 80 facilitators 78% has a set of facilitation techniques that they regularly use. Although facilitators have often access to databases with facilitation techniques such as [18, 24], they tend to fall back on their favorite facilitation techniques. Preference, skill or experience are therefore frequently reasons to choose a facilitation technique.

When we look at the overview in table 3, we are reminded of the descriptive model of GSS research described by Nunamaker et al [2]. In this model on GSS factors related to the group, task, context and GSS are combined in a process with specific outcomes. In the design of a collaboration process, the facilitator combines his or her best practices with the requirements in terms of efficiency and effectiveness to design a collaboration process that fits to the task, group and context.

7. Conclusions

This paper presented an overview of choice criteria used by facilitators when selecting among facilitation techniques. The three different sets of data increased our understanding of the choices facilitators make. The data revealed a large set of criteria which are brought together in the overview in table 3. Clearly the appropriateness of a facilitation technique should be rated on several of the criteria. The choice criteria set can be used to make facilitators aware of the complexity of the choices they are faced with, and the assumptions underlying their design effort. However, in order to further implement the criteria set as a selection tool, additional research is required.

Although we indicated the hierarchical relations among the criteria, it will be important to find the causal relations among them, and the logic by which the choices are made. For instance, can criteria be classified into specific sets? Some criteria need to be applied in conjunction with others, such that all need to be satisfied before a technique can be chosen. For other sets of criteria only one needs to apply. Which choice criteria are dominant, and which are used for refinement of the choice?

The criteria overview can be used to make a documentation format for facilitation techniques. An example of such a documentation format is the thinkLet. ThinkLets are facilitation techniques described as patterns [17] according to a specific conceptualization. This makes the technique more transferable, reusable and predictable [39]. In order to use each of the selection criteria described above, the facilitation techniques should be described in detail for each of these aspects. Further development of the choice criteria set will provide added value for the practice of facilitation. In order to make new facilitation techniques useful for novices they should not only be documented in libraries, but it should also be possible to make a selection among them, and to predict their effect. This will enable less experienced facilitators to offer or use successful collaboration support.

In addition to understanding the relations between the choice criteria and improve the thinkLet documentation format, research should address conflicts between techniques. This research might help in explaining which criteria are more important, depending on the context in which they are used.

- Predicted efficiency
  - Fit with the set timeframe
  - Fit with the capabilities of (technical) resources
  - Fit with the possible cognitive load
  - Need for alternation and fun to increase effort
- Predicted effectiveness
  - To what extend will the goal be achieved
  - How certain is the effect of the facilitation technique
- Task requirements
  - Need for divergence and detail
  - Need for shared understanding
  - Need for structure and organizing
  - Need for consensus and shared result
  - Need for evaluation
  - Content requirements such as time perspective, complexity and scope
- Group requirements
  - Group size
  - Required motivation participants
  - Number of stakeholders
  - Group capability
- Context of technique and process
  - Order of activities in agenda
  - Embedding in organization
- Facilitator's best practices

Table 3 choice criteria for facilitation techniques overview

8. References

[1] Hlupic, V. and Qureshi, S., "What Causes Value to be Created when it did not Exist Before? A Research Model for Value Creation," presented at Hawaii International Conference on System Sciences, Los Alamitos, 2002.

[2] Nunamaker, J.F. Jr., Briggs, R.O., Mittleman, D.D., Vogel, D., and Balthazard, P.A., "Lessons from a Dozen Years of Group Support Systems Research: A Discussion of Lab and Field Findings," *Journal of Management Information Systems*, vol. 13, pp. 163-207, 1997.

[3] Bostrom, R., Anson, R., and Clawson, V.K., "Group Facilitation and Group Support Systems," in *Group Support Systems: New Perspectives*, Jessup, L.M. and Valacich, J.S., Eds.: Macmillan, 1993.

[4] Schwarz, R.M., *The Skilled Facilitator*. San Francisco: Jossey-Bass Publishers, 1994.

[5] Clawson, V.K. and Bostrom, R.P., "The Importance of Facilitator Role Behaviors in Different Face to Face Group Support Systems Environments," presented at Hawaii International Conference on System Sciences, Los Alamitos, 1995.

[6] Hayne, S.C., "The Facilitators Perspective on Meetings and Implications for Group Support Systems Design," *DataBase*, vol. 30, pp. 72-91, 1999.

[7] Simon, H.A., *The New Science of Management Decision*. New York: Prentice Hall, 1960.

[8] Mitroff, I.I., Betz, F., Pondly, L.R., and Sagasty, F., "On Managing Science In The Systems Age: Two Schemas For The Study Of Science As A Whole Systems Phenomenon," *TIMS Interfaces*, vol. 4, pp. 46-58, 1974.

[9] Ackoff, R.L., *The Art of Problem Solving*: John Wiley & Sons, 1978.

[10] Couger, J. D., *Creative Problem Solving and Opportunity Finding*: Danvers, Mass: Boyd And Fraser, 1995.

[11]Checkland, P.B., *Systems Thinking, Systems Practice*. Chichester: John Wiley & Sons, 1981.
[12]Simon, H.A., "The Structure Of Ill Structured Problems," *Artificial Intelligence*, vol. 4, pp. 181-201, 1973.
[13]Dennis, A.R., Wixom, B.H., and Vandenberg, R.J., "Understanding Fit and Appropriation Effects in Group Support Systems Via Meta-Analysis," *Management Information Systems Quarterly*, vol. 25, pp. 167-183, 2001.
[14]Zigurs, I. and Buckland, B., "A Theory of Task/Technology Fit and Group Support Systems Effectiveness," *Management Information Systems Quarterly*, vol. 22, pp. 313-334, 1998.
[15]Andersen, D.F. and Richardson, G.P., "Scripts for Group Model Building," *System Dynamics Review*, vol. 13, pp. 107-129, 1997.
[16]Vennix, J.A.M., "Group Model-Building: Tackling Messy Problems," *System Dynamics Review*, vol. 15, pp. 379 - 401, 1999.
[17]Kolfschoten, G.L., Briggs, R.O., Appelman, J.H., and Vreede G.J., de, "ThinkLets as Building Blocks for Collaboration Processes: A Further Conceptualization," presented at CRIWG, San Carlos, Costa Rica, 2004.
[18]Jenkins, J., "IAF Mehods Database," 2005.
[19]Kolfschoten, G.L. and Veen, W., "Tool Support for GSS Session Design," presented at Hawaii International Conference on System Sciences, Los Alamitos, 2005.
[20]Antunes, P., Ho, T., and Carriço, L., "A GDSS Agenda Builder for Inexperienced Facilitators," presented at 10th EuroGDSS Workshop, Copenhagen, Denmark, 1999.
[21]Goncalves, N. and Antunes, P., "Decision Can: A Database of Decision Cases," presented at 2nd International Conf. on Enterprise Information Systems, Stafford, UK, 2000.
[22]Kolfschoten, G.L., Hengst, M., den, and Vreede, G.J., de, "Issues in the Design of Facilitated Collaboration Processes," presented at Group Decision and Negotiation Conference, Vienna, 2005.
[23]Vreede, G.J., de, Davison, R. , and Briggs, R.O., "How a Silver Bullet May Lose its Shine - Learning from Failures with Group Support Systems," *Communications of the ACM*, vol. 46, pp. 96-101, 2003.
[24]Briggs, R.O. and Vreede, G.J., de, *ThinkLets, Building Blocks for Concerted Collaboration*, 2001.
[25] Delbecq, A.L., Ven, A.H. van de, and Gustafson, G.H., *Group Techniques for Program Planning: a Guide to Nominal Group and Delphi Processes*. Glenview: Scott, Foresman and Co, 1975.
[26]Osbourn, A.F., *Applied Imagination*. New York: Scribners, 1953.
[27]VanGundy, A.B., *Techniques of Structured Problem Solving*. New York: Van Nostrand Reinhold Co, 1981.
[28]Wood, R.E., "Task Complexity: Definition of the Construct," *Organizational behavior and Human Decision Processes*, vol. 37, pp. 60-82, 1986.
[29]Vreede, G.J., de and Briggs, R.O., "Collaboration Engineering: Designing Repeatable Processes for High-Value Collaborative Tasks," presented at Hawaii International Conference on System Science, Los Alamitos, 2005.
[30]Santanen, E.L., Vreede, G.J. de, and Briggs, R.O., "Causal Relationships in Creative Problem Solving: Comparing Facilitation Interventions for Ideation," *Journal Of Management Information Systems*, vol. 20, pp. 167 -197, 2004.
[31]Santanen, E.L., "Resolving Ideation Paradoxes: Seeing Apples as Oranges Through the Clarity of ThinkLets," presented at Hawaii International Conference on System Sciences, Los Alamitos, 2005.
[32]Ericsson, K.A. and Simon, H.A., *Protocol Analysis: Verbal Reports as Data*. Cambridge: MIT Press, 1993.
[33]Schenk, K.D., Vitalari, N.P., and Davis, K.S., "Differences Between Novice and Expert Systems Analysts: What Do We Know and What Do We Do?," *Journal of Management Information Systems*, vol. 15, pp. 9-50, 1998.
[34]Glaser, B. and Strauss, A., *The Discovery of Grounded Theory*. Chicago: Aldine, 1967.
[35]Wester, F. and Peters, V., *Kwalitatieve Analyse. Uitgangspunten en Procedures.* Bussum: Coutinho, 2004.
[36]Blumer, H., *Symbolic Interactionism: Perspective and Method*. Englewood Cliffs: Prentice hall, 1969.
[37]Fjermestad, J. and Hiltz, S.R., "An Assessment of Group Support Systems Experimental Research: Methodology and Results," *Journal Of Management Information Systems*, vol. 15, pp. 7-149, 1999.
[38]Fjermestad, J. and Hiltz, S.R., "A Descriptive Evaluation of Group Support Systems Case and Field Studies," *Journal Of Management Information Systems*, vol. 17, 2001.
[39]Briggs, R.O., Vreede, G.J. , de, and Nunamaker, J.F., Jr., "Collaboration Engineering With ThinkLets To Pursue Sustained Success With Group Support Systems," *Journal Of Management Information Systems*, vol. 19, pp. 31-63, 2003.
[40]Kolfschoten, G.L., Appelman, J.H., Briggs, R.O., and Vreede, G.J., de, "Recurring Patterns of Facilitation Interventions in GSS Sessions," presented at Hawaii International Conference On System Sciences, Los Alamitos, 2004.